ST-Elevation Myocardial Infarction (STEMI) is commonly referred to as a "heart attack." It involves a blockage of an artery supplying critical blood flow to the heart muscle. This blockage can cause death of part of the heart muscle, leading to heart failure, heart rhythm problems, and death. Like trauma and stroke, STEMI is a time-critical illness and immediate recognition and treatment are critical to optimal patient outcomes. Literally, "time is muscle," as each minute of blood flow interruption increases the death of precious heart muscle. Two effective treatments are available for patients suffering from a STEMI; both involve opening the blocked vessel and restoring the blood flow to the heart muscle. The blocked vessel can be opened chemically by use of intravenous thrombolytic medications (also called "clot busters") or mechanically by using a balloon and a stent inserted into the blocked vessel through a long catheter (called "angioplasty"). While both treatments are effective and can be lifesaving, research has determined that, when available, the most effective treatment involves opening the blocked artery via angioplasty. However, this treatment is only available in specialized centers with cardiac catherization laboratories (cath labs) and interventional cardiologists. Conversely, thrombolytic medications are available at virtually every hospital statewide.

Over the past three years, the Utah Bureau of Emergency Medical Services and Preparedness (BEMS) has enlisted the expertise of hospital cardiac care experts, cardiologists, emergency physicians, EMS providers, the Utah Hospital Association, and the American Heart Association to develop a system to speed the recognition and treatment of STEMI patients. The focus of the Utah STEMI System is to integrate EMS and hospitals to get patients with STEMIs to the hospital best able to treat them in the shortest possible time. Nationally, many cities and regions have developed such formal systems to facilitate the care of these patients.

The Utah STEMI System development process has involved three phases:

1. The development of both pre-hospital (EMS) and hospital protocols for integration of patient care from the field to the ED/cath lab.
2. The funding and fielding of 12-lead field ECGs to EMS agencies throughout the state.
3. The identification and designation of STEMI/PCI Centers (those specialized centers with interventional cardiac catherization laboratories) meeting standardized criteria, to which EMS will preferentially transport field-identified STEMI patients.

The Utah STEMI system involves a multi-faceted approach to heart attack victims. EMS agencies, utilizing field ECGs, identify STEMI patients and alert hospital emergency departments of the patient condition and time of arrival. The field ECG is transmitted to the receiving hospital directly from the patient's location, allowing immediate review by the hospital physicians. This allows them to assist in the field care of the patient, as well as to activate their hospital STEMI team to ready the cath lab. As a result of this coordinated response, precious minutes are saved. Nationally, this approach has saved an average of over 20 minutes per patient in the time it takes a patient to move from the field to definitive care in the cath lab. The Utah Hospital Association and its member hospitals have contributed funds to help purchase these ECGs for EMS agencies statewide. Through these efforts, over 90% of the population in Utah has access to EMS agencies with lead ECG capabilities. Plans to cover the other 8% are in the works (see Figure 1).

Where and when appropriate, it is anticipated that EMS providers may bypass a non-PCI hospital to facilitate timely definitive care for STEMI patients at a STEMI/PCI Center hospital.

- ST-Elevation Myocardial Infarction (STEMI) is commonly referred to as a "heart attack." STEMI is a time-critical illness and immediate recognition and treatment are critical to optimal patient outcomes.
- Research has determined that, when available, the most effective treatment involves opening the blocked artery via angioplasty.
- Over the past three years, the Utah Bureau of Emergency Medical Services and Preparedness (BEMS) has enlisted the expertise of hospital cardiac care experts, cardiologists, emergency physicians, EMS providers, the Utah Hospital Association, and the American Heart Association to develop a system to speed the recognition and treatment of STEMI patients.
- Beginning September 15, 2011, hospitals will be invited to become officially designated as STEMI/PCI Centers.
- Today, many EMS agencies and receiving hospitals around the state are already utilizing the new ECG technology to speed lifesaving care to heart patients.

Hospitals designated as STEMI/ PCI Centers must meet nationally accepted criteria to receive these patients. These include the ability to receive ECGs transmitted by EMS from the field; 24 hour availability of a cardiac cath lab team that will respond to a STEMI alert with in 30 minutes of notification; and the ability to provide care to STEMI patients who may have a difficult airway, arrange for emergency cardiac surgery, if needed, and provide the intensive care required by STEMI patients after appropriate intervention is provided. STEMI/ PCI Centers must also agree to monitor and report Performance Improvement (PI) results to the Bureau of EMS, which will monitor results of the PI. Presently, there are 15 hospitals in Utah that may qualify as PCI Centers.

Since not all STEMI patients are located in areas with access to STEMI/PCI Centers, smaller hospitals will utilize emergency treatment with thrombolytics, followed by consultation with cardiac experts at STEMI/PCI Centers for possible transfer for PCI treatment as needed. Non-PCI facilities will be encouraged to develop a relationship with larger STEMI/PCI Centers to facilitate such communication and patient-care coordination.

Beginning September 15, 2011, hospitals will be invited to become officially designated as STEMI/ PCI Centers. Today, many EMS agencies and receiving hospitals around the state are already utilizing the new ECG technology to speed lifesaving care to heart patients. As it continues to develop and mature, the Utah STEMI System will help improve the emergency cardiac care available to all Utah residents, regardless of their location.

Counties in Utah Covered by 12-Lead ECG

Figure 1. Counties in Utah covered by 12-lead ECG as of August 2011

Office of Primary Care and Rural Health, Utah Department of Health   September 2011
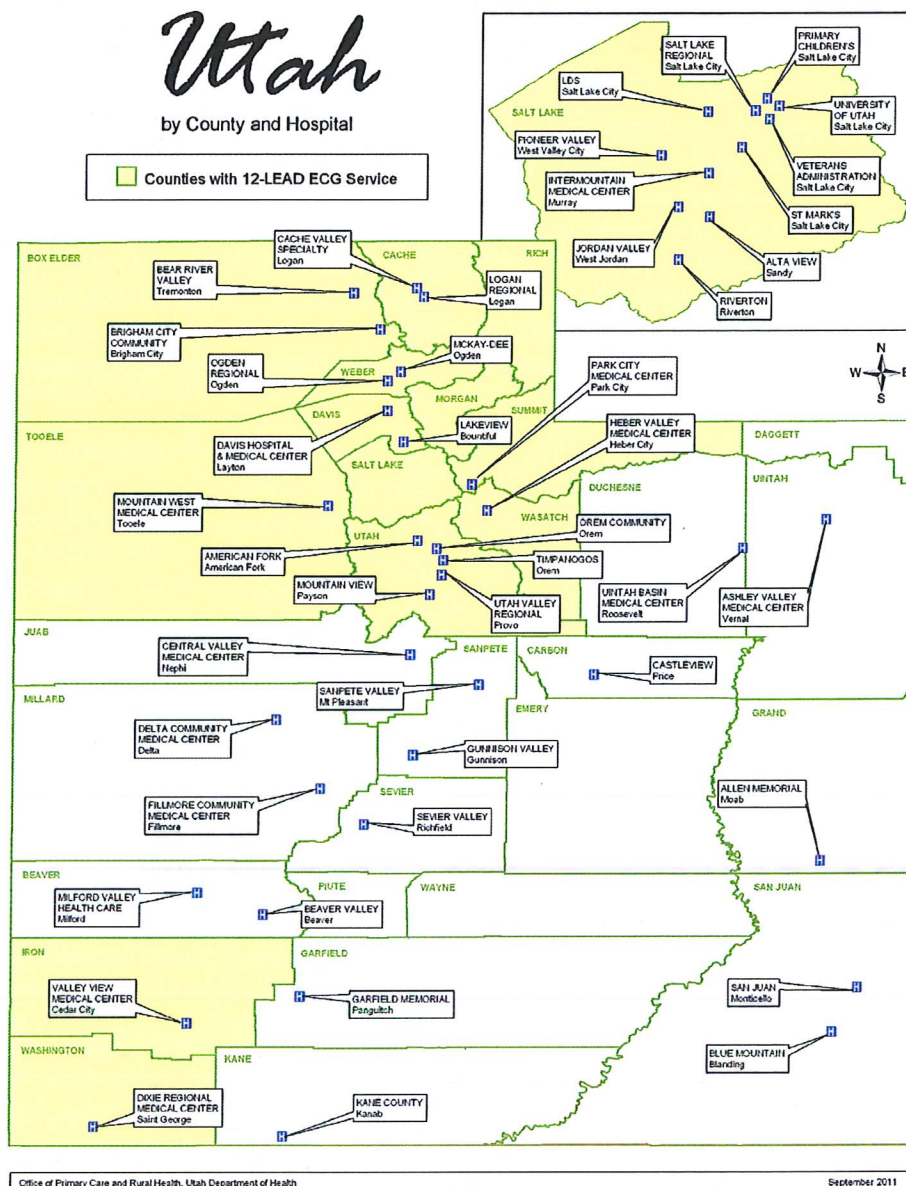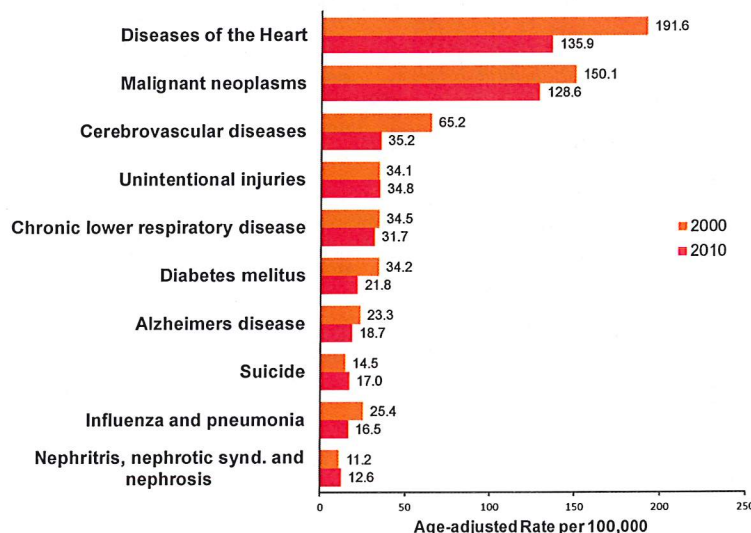
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For additional information about this topic, contact Peter Taillac, M.D. (ptaillac@utah.gov) or Robert Jex, RN (rjex@utah.gov), both of the Bureau of EMS and Preparedness; or the Office of Public Health Assessment, Utah Department of Health, Box 142101, Salt Lake City, UT 84114-2101, (801) 538-9191, email: chdata@utah.gov

Breaking News, October 2011

Trends in Leading Causes of Death for the State

With the publication of mortality data for 2010 a new decade of trend data on leading causes of death in Utah became available. While the overall ranking of the leading causes of death in Utah remained fairly stable over the decade 2000 to 2010, some important trends are evident in the data. Age-adjusted death rates have declined significantly for many of the "big killers." There was a 29% decline in the death rate for diseases of the heart (the leading cause of death at both the beginning and the end of the decade) and a 46% decline in the death rate for cerebrovascular disease. Age-adjusted death rates for cancer, chronic obstructive pulmonary disease, diabetes and influenza and pneumonia all declined over the decade. Small (not statistically significant) increases in age-adjusted mortality were seen for suicide and nephritis, nephrotic syndrome and nephrosis. Over the decade unintentional injuries passed chronic lower respiratory disease and diabetes to become the 4th leading cause of death (age-adjusted) in Utah.

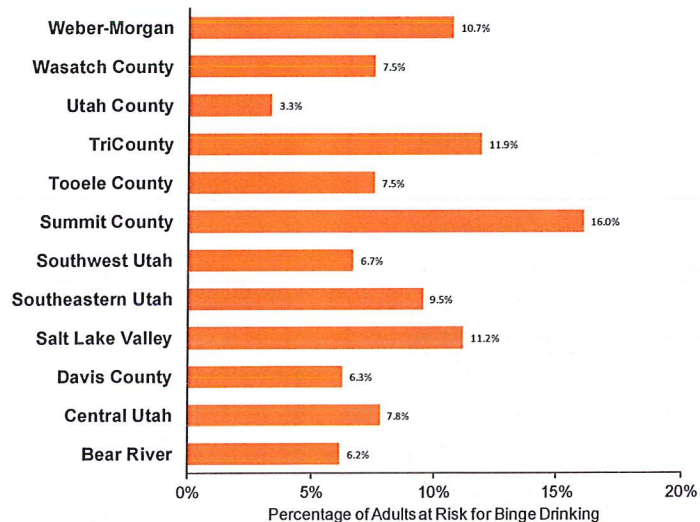**Ten Leading Causes of Death of Utah Residents per 100,000, Utah Population, 2000 and 2010**

Cause	2000	2010
Diseases of the Heart	191.6	135.9
Malignant neoplasms	150.1	128.6
Cerebrovascular diseases	65.2	35.2
Unintentional injuries	34.1	34.8
Chronic lower respiratory disease	34.5	31.7
Diabetes melitus	34.2	21.8
Alzheimers disease	23.3	18.7
Suicide	14.5	17.0
Influenza and pneumonia	25.4	16.5
Nephritris, nephrotic synd. and nephrosis	11.2	12.6

Age-adjusted Rate per 100,000

Community Health Indicators Spotlight, October 2011

Binge Drinking in Utah

Binge drinking is defined as the consumption of five or more drinks on an occasion for men, or four or more drinks on an occasion for women one or more times during the past 30 days. Binge drinking is an indicator of potentially serious alcohol abuse, and can lead to serious health problems, injuries, and violence. In Utah, the percentage of adults who reported binge drinking in the past 30 days fluctuated between highs of 12% in 1989 and 1993 to a low of 7.7% in 1997. In 2010, 8.7% (crude rate) of Utahns were at risk for binge drinking. However, there was a significant difference in risk between men and women: 5.6% of women are at risk for binge drinking and 11.9% of men are at risk. Younger adults had higher rates of binge drinking than older adults. Amongst Utah's local health districts, the highest age-adjusted rates of binge drinking were found in Summit County LHD (16.03%), TriCounty LHD (11.9%), and Salt Lake Valley LHD (11.2%), but only Summit County and Salt Lake Valley were statistically significantly higher than the state rate. The lowest rate of binge drinking was found in the Utah County LHD (3.3%) and this rate was statistically significant.

Binge Drinking by Local Health District, Utah, 2010

Local Health District	Percentage of Adults at Risk for Binge Drinking
Weber-Morgan	10.7%
Wasatch County	7.5%
Utah County	3.3%
TriCounty	11.9%
Tooele County	7.5%
Summit County	16.0%
Southwest Utah	6.7%
Southeastern Utah	9.5%
Salt Lake Valley	11.2%
Davis County	6.3%
Central Utah	7.8%
Bear River	6.2%

Data Sources: Utah Behavioral Risk Factor Surveillance System, 2010.

Monthly Health Indicators Report
(Data Through August 2011)

Program Enrollment for the Month of August 2011

	Current Month	Previous Month	1 Year Ago	% Changed¶ From Previous Month	% Changed¶ From 1 Year Ago
Medicaid	247,627	243,762	225,703	+1.6%	+9.7%
PCN (Primary Care Network)	15,820	16,347	14,620	-3.2%	+8.2%
CHIP (Children's Health Ins. Plan)	38,641	37,994	40,975	+1.7%	-5.7%

Health Care System Measures

	Number of Events (Current Data Year)	Annual Visits — Rate per 100 Population	Annual Visits — % Changed¶ From Previous Year	Annual Charges — Total Charges in Millions	Annual Charges — % Changed¶ From Previous Year
Overall Hospitalizations (2010)	274,576	9.0%	-2.6%	$ 5,416.2	+5.9%
Non-maternity Hospitalizations (2010)	167,340	5.3%	-0.9%	$ 4,552.5	+5.9%
Emergency Department Encounters (2009)	684,176	23.3%	-1.1%	$ 1,081.4	+22.9%
Outpatient Surgery (2009)	311,442	10.6%	+1.9%	$ 1,465.7	+14.7%

Annual Community Health Measures

	Current Data Year	Number Affected	Percent Rate	% Changed¶ From Previous Year	State Rank# (1 is best)
Obesity (Adults 18+)	2010	454,700	23.1%	-4.0%	11 (2010)
Cigarette Smoking (Adults 18+)	2010	180,100	9.1%	-6.9%	1 (2010)
Influenza Immunization (Adults 65+)	2010	175,900	68.2%	-0.8%	23 (2010)
Health Insurance Coverage (Uninsured)	2010	301,900	10.6%	-5.6%	n/a
Motor Vehicle Traffic Crash Injury Deaths	2009	227	8.1 / 100,000	-16.6%	15 (2007)
Poisoning Deaths	2009	543	19.4 / 100,000	+7.0%	49 (2007)
Suicide Deaths	2009	445	15.9 / 100,000	+15.3%	n/a
Diabetes Prevalence (Adults 18+)	2010	128,000	6.5%	+0.2%	15 (2010)
Poor Mental Health (Adults 18+)	2010	296,100	15.0%	+6.8%	17 (2010)
Coronary Heart Disease Deaths	2009	1,469	52.5 / 100,000	-4.4%	1 (2007)
All Cancer Deaths	2009	2,543	90.8 / 100,000	+1.1%	1 (2007)
Stroke Deaths	2009	734	26.2 / 100,000	-2.2%	14 (2007)
Births to Adolescents (Ages 15-17)	2009	992	16.5 / 1,000	-10.6%	19 (2008)
Early Prenatal Care	2009	38,562	71.6%	-9.6%	n/a
Infant Mortality	2009	285	5.3 / 1,000	+11.4%	4 (2007)
Childhood Immunization (4:3:1:3:3:1)	2009	41,500	76.6%	+4.1%	16 (2009)

Monthly Report of Notifiable Diseases, August 2011

	# Cases Current Month	# Expected Cases Current Month (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
Campylobacteriosis (Campylobacter)	48	38	329	253	1.3
Shiga toxin-producing Escherichia coli (E. coli)	16	23	67	81	0.8
Hepatitis A (infectious hepatitis)	0	1	4	8	0.5
Hepatitis B, acute infections (serum hepatitis)	1	2	6	10	0.6
Meningococcal Disease	0	0	7	5	1.5
Pertussis (Whooping Cough)	18	27	301	255	1.2
Salmonellosis (Salmonella)	25	33	216	226	1.0
Shigellosis (Shigella)	7	7	37	29	1.3
Varicella (Chickenpox)	11	15	226	446	0.5
West Nile (Human cases)	1	31	1	39	0.0

Quarterly Report of Notifiable Diseases, 2nd Qtr 2011

	# Cases Current Quarter	# Expected Cases Current Quarter (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
HIV/AIDS†	21	30	43	60	0.7
Chlamydia	1,687	1,443	3,405	2,946	1.2
Gonorrhea	66	146	119	297	0.4
Tuberculosis	11	9	23	17	1.4

Medicaid Expenditures (in Millions) for the Month of August 2011

	Current Month # Cases	Expected/ Budgeted‡ for Month	Fiscal YTD	Budgeted‡ Fiscal YTD	Variance - over (under) budget
Capitated Mental Health	$ 21.6	$ 22.7	$ 28.8	$ 30.3	$ (1.5)
Inpatient Hospital	$ 19.3	$ 24.6	$ 27.5	$ 33.9	$ (6.5)
Outpatient Hospital	$ 8.7	$ 7.4	$ 11.9	$ 11.5	$ 0.4
Long Term Care	$ 13.2	$ 18.7	$ 20.4	$ 26.3	$ (5.9)
Pharmacy§	$ 13.4	$ 6.6	$ 26.6	$ 23.6	$ 3.0
Physician/Osteo Services	$ 6.8	$ 6.6	$ 9.8	$ 10.0	$ (0.2)
TOTAL HCF MEDICAID	$139.6	$ 146.8	$ 210.3	$ 226.5	$ (16.2)

† Diagnosed HIV infections, regardless of AIDS diagnosis.
‡ Budget has been revised to include supplemental funding from 2011 General Session.
§ Only includes the gross pharmacy costs. Pharmacy Rebate and Pharmacy Part-D amounts are excluded from this line item.
¶ % Change could be due to random variation.
# State rank based on age-adjusted rates.
Notes: Data for notifiable diseases are preliminary and subject to change upon the completion of ongoing disease investigations. Active surveillance for influenza virus has ended until the 2011-2012 season.